

DEPARTMENT OF HEALTH SERVICES

MEDICAL WASTE MANAGEMENT PROGRAM, MS 7405

P.O. BOX 997413

SACRAMENTO, CA 95899-7413

(916) 449-5671 (916) 449-5665 fax



**Alternative Medical Waste Treatment Technologies
Approved by the California Department of Health Services**

Effective Date: May 15, 2006



The technologies listed below have been approved by the Department of Health Services to treat medical waste in California. The approval may be limited to certain types of wastes. Please review the information provided to verify the approved uses of each technology. Individuals interested in the products described in this document are encouraged to contact the company directly.

Alternative Technology Approval is based solely on a product's demonstration of pathogen destruction. Putting the technologies to use may require permitting as on-site or off-site medical waste treatment. Sections 118130 and 118135 of the Medical Waste Management Act require that any offsite medical waste treatment facility obtain a permit from the Department before treating medical waste. Permitting of onsite facilities is addressed in 117925 (a) and 117950 (a) of the Medical Waste Management Act.

Disposable technologies (products which treat medical waste and are then disposed along with the treated waste) do not require permits. Those products are noted in the list as "permit-exempt".

EARTH-SHIELD Company - Sharp-Shield

Joe A. Dendy, D.V.M.
Earth Shield Company
304 Yampa Street
Bakersfield, CA 93307

(661) 322-0300 Office

The device is a point-of-generation disposable system for sharps waste only. Hypodermic needles placed in the container are sanitized within 24 hours by low concentrations of gaseous chlorine, slowly released by dry calcium hypochlorite present in the sharps container. Reagents are added to the full container and the needles become encased in a solid cementitious medium. The container may then be disposed of as solid waste.

Sharps waste only. —Permit-Exempt.

GMS Marketing Services—Sterimed

Arye Addady
GMS Marketing Services
191 Hempstead Turnpike
West Hempstead, NY 11552

(516) 483-1403 Office
(800) Sterimed Office

The SteriMed infectious waste disinfecting disposal unit shreds and simultaneously mixes medical waste with a disinfecting solution composed of quarternary ammonium compounds and gluteraldehyde. The mixture is then recirculated through the shredder to increase the surface exposed to the disinfectant. Treated non-liquid waste is then separated for disposal as municipal solid waste and the liquid fraction is sewered.

Not for pathology, chemotherapy, or pharmaceutical waste.

Isolyser - ORex™ Processor

Microtek Medical, Inc
512 Lehmberg Road
Columbus, MS 39702

(662) 327-1863
(800) 824-3027 (Customer
Service)

The device, essentially a modified commercial washer, treats biohazard-contaminated operating room garments, linens, drapes and utensils made of ORex™ polymer (high molecular weight polyvinyl alcohol) in 190° F water for ten to 25 minutes (depending on load). The polymer fabric is dissolved and pathogens destroyed. The resulting mixture is then sewered. A button catcher intercepts solid objects such as buttons and surgical instruments.

Isolyser - Sharps Management System (SMS)

Gregg R. Short
WCM Inc.
6054 Corte Del Cedro
Carlsbad, CA 92009

(866) 436-9264
<http://www.wcminc.net/>

The device is a disposable system intended for use on-site at the point of generation. When used properly, the containerized waste becomes encapsulated within the container and the waste may be disposed of as solid waste.

Sharps waste only. —Permit-Exempt

Kvaerner U.S. Inc. Successor to Mediclean Technology Inc., Medical Compliance Services, Inc.- Encore 2000 RWP

Mr. David Hahn,
Vice President/ Sales and Marketing
Kvaerner U.S., Inc.
116 Roddy Avenue
South Attleboro, MA 02703-7974

(508) 399-6400 Office

The device pre-shreds and then “granulates” medical waste in the presence of chlorine dioxide (ClO₂). Chlorine dioxide is generated in-situ. Precursors are approved by Federal EPA and the California Department of Pesticide Regulation. The capacity of the system is approximately 2,000 pounds per hour of typical input waste.

Previously known as Mediclean Technology Inc., Medical Compliance Services, Inc.

Not for pathology, chemotherapy, or pharmaceutical waste. —Permit-Exempt

Medical Innovations, Inc. TAPS (Thermal Activated Plastic Sterilization)

David Freedman
Medical Innovations, Inc.
P.O. Box 148
Wayland, MA 01778

(508) 358-8099 Voice
(508) 358-2131 Fax

TAPS™ is a bench-top treatment technology approved for treatment of sharps waste. The system completely encases treated waste in a solid plastic cylinder, and relies on direct conduction of heat from molten plastic to the contaminated waste to achieve disinfection. Therefore, if there is any waste protruding from the plastic cylinder the cycle must be repeated.

Not for pathology, chemotherapy, or pharmaceutical waste.

Medical SafeTEC

Lynn Benson, Manager
Medical Waste SafeTEC
330 West Center Street
North Salt Lake, Utah 84054

(801) 209-6582 Office
(801) 936-0112 Fax
<http://www.medwastetec.com/>

This system uses a hammer mill and sodium hypochlorite for grinding and disinfecting medical waste. Red bags and sharps waste are fed into the unit through the hopper. Once the waste is processed, the resulting solid waste is unrecognizable and may be disposed at a solid waste facility.

Not for pathology, chemotherapy, or pharmaceutical waste.

Metrex Research Corporation, - PremiCide-CA

A. J. LaSota, General Manager
Metrex Research Corporation
1717 W. Collins Ave.
Orange, CA 92867

(800) 841-1428 Office

PremiCide-CA is a sanitizing encapsulant for liquid medical waste. The active ingredient is glutaraldehyde. This product is marketed for suction canister use, and is available in pre-measured quantities for various size suction canisters. This product was tested in 20% serum, and is suitable for treatment only of suction canisters containing 20% or lower bioload. Waste from suction canisters containing a higher percentage of blood or body fluids should be disposed of as medical waste.

Suction canister(20% or less bioload) waste only- Permit-Exempt.

Needlyzer™

Clarke Lloyd
International Marketing and Compliance Healthcare
Products Plus, Inc.
2119 North Kenmore Ave.
Chicago, IL 60614

(773) 528-2652 Office

The Needlyzer™ fuses metal hypodermic needles by means of an electric circuit created when the needle touches the two electrodes inside the unit. The resulting high temperature oxidation destroys organic matter on the needle. The “swarf” (metal oxides) produced may be disposed of as solid waste. The remaining syringe and hub must be placed in a sharps container.

Sharps waste only. Permit exempt.

North American Power – Thermal Recovery Unit™ (TRU)

Stephanie Conover
3471 W. Oquendo Road, Suite 102
Las Vegas, NV 89119

(702) 270-9543

<http://www.napower.com/>

In this process, medical waste is first steam-sterilized, then shredded and fed through an airlock system (to exclude oxygen) and augered through a retort chamber. The waste is heated externally (i.e., no flame reaches the waste) to temperatures ranging from 1000° to 1850° F. All volatile material in the waste becomes gaseous; the remainder is reduced to a carbon char. The gases are then fed into a secondary chamber, a Thermal Oxidizer (TO), where, in an oxygen-rich environment they are ignited and converted to CO₂ and H₂O. Exit gasses pass through a baghouse before discharge to the atmosphere. The char is solid waste and may be landfilled or recycled.

All forms of medical waste

Plasma Enhanced Melter™

David L. Farmer
President
InEnTec Medical Services, LLC
1935 Butler Loop
Richland, WA 99352

(509) 946-5700
(949) 472-3713
www.inentec.com

The IET Plasma Arc Melter™ destroys medical waste in a chemically reducing environment at temperatures exceeding 1800°F. Organic material (plastics, pathology, pharmaceutical and trace chemotherapy waste) is converted via steam reforming into synthesis gas that can be sold for hydrogen content or to power onsite electrical or steam plants. The system is equipped with activated charcoal filters which are specially dosed to remove mercury (if any is present) from the gas. The residual inorganic material (glass, ceramics, needles, ash) forms a leach resistant glass that will incorporate any heavy metals present.

All forms of medical waste.

PMA Services Inc. - MedClean-M

Mr Joseph T. Militello
PMA Services, Inc.
22347 La Palma Ave. Ste. 106
Yorba Linda, CA 92887

(714) 692-8533 Office
(714) 692-5478 Fax

This device disinfects medical waste through the use of dry heat. Plastic items including needles and syringes, petri dishes, culture plates and red-bag waste are heated to temperatures in excess of 500° Fahrenheit. The resulting block of plastic encases sharps, is unrecognizable as medical in origin, and may be disposed of as solid waste. The unit provides a printout of each cycle showing cycle time and temperature.

Not for pathology, chemotherapy, or pharmaceutical waste.

Roatan Redlock System

Ms. Suzanne Helton-Beck
Roatan
1022 Santerre Drive
Grand Prairie, TX 75050

(214) 647-4033 Office
(415) 871-6509 Fax

Steam, generated within a pressure-vessel, by externally placed microwave units, treats medical waste contained in a removable container sealed inside the vessel. Its treatment capacity is approximately 50 pounds per hour. Typical processing time is 20 minutes dependent upon the load and is determined by a continuous monitoring system. The unit features reusable 25-gallon containers designed to fit within the pressure vessel for treatment.

Not for pathology, chemotherapy, or pharmaceutical waste.

Sanitec Microwave Disinfection Technology SANITEC HG-A-100, HG-A-250

James R. Harkess, President
Sanitec Industries, Inc.
9065 Norris Avenue
Sun Valley, CA 91352

818-504-0343

This system uses a microwave disinfection unit to treat medical waste. Two models are approved: 100 kg/hr and 250 kg/hr throughput. The waste is shredded and heated sufficiently to render it noninfectious. The resulting waste is unrecognizable and may be disposed of as solid waste at a solid waste facility.

Not for pathology, chemotherapy, or pharmaceutical waste.

Scientific Ecology Group, Inc. (SEG) - Synthetica Detoxifier Process

Mr. Bryan A. Roy,
VP, Technology Applications
Scientific Ecology Group, Inc.
P. O. Box 2530
1560 Bear Creek Road
Oak Ridge, TN, 37831-2530

(423) 481-0222 Office
(423) 482-7206 Fax

The device meters medical waste that has been shredded to a closely controlled size, into a steam-reforming screw conveyor that produces syngas, hence reducing the waste mass as it sterilizes. The syngas is then catalytically oxidized to CO₂ and water, or may be used to power electrical generators. The STD system also includes exhaust treatment equipment to remove trace vapor contaminants prior to discharge.

Not for pathology, chemotherapy, or pharmaceutical waste.

Steris Corporation - EcoCycle 10 Processor

Mr. Paul Zamecnik, President
Steris Corporation
9450 Pineneedle Drive
Mentor, OH 44060

(216) 354-2600 Office

The device grinds up to 8 pounds of medical waste in the presence of diluted peracetic acid and other inert ingredients followed by an exposure time "rest" to assure pathogen destruction. The chamber contents are then rinsed and spin-dried. The liquid portion is sewered, and the solids may be disposed as solid waste.

Not for pathology, chemotherapy, or pharmaceutical waste.

Stericycle, Inc. - Electro-Thermal Deactivation

Richard T. Cogler, COO
27161 N. Keith Drive
Lake Forest, IL 60045

(847) 607-2070 Office

The device disinfects medical waste by heating it with low-frequency radio waves. Once moistened with approximately 10% H₂O, the waste is heated to a minimum of 90°C and held in insulated containers (to slow heat loss).

Not for pathology, chemotherapy, or pharmaceutical waste.

Thermal Waste Technologies, Inc. Demolizer System (Heat Sterilization)

Mr. Jon Bricken, President/CEO
Thermal Waste Technologies, Inc.
19 Stoney Hill Road
Bethel, CT 06801

(203) 778-1139

(Previously known as
DOCC, Inc.)

In this table-top unit, sharps and biohazardous waste in one gallon sealed container filled with medical waste are heated to 350°F for 90 minutes. After cooling, the treated waste can be disposed of as solid waste.

Not for pathology, chemotherapy, or pharmaceutical waste.- Permit -Exempt

Thermal Equipment Corporation--Mediclave

Mr. Kenneth R. Earls
Thermal Equipment Corporation
1301 W. 228th Street
Torrance, CA 90501

(310) 328-6600 Office

This is an abbreviated-cycle steam sterilization device which applies high pressure (150 psi), high temperature (350°F) steam within a jacketed pressure vessel. At the end of the cycle, a hydraulic ram within the unit compresses the super-heated waste into an eight-inch-by-three-foot diameter disk, which can be recycled or landfilled.

Not for pathology, chemotherapy, or pharmaceutical waste.

Thermokill, Incorporated - Heat Sterilization

Mr. Michael J. Gaylor
 Thermokill, Inc.
 400 Douglas Avenue, Suite C
 Dunedin, FL 34698

(800) 483-1111

**PENDING REMOVAL
 FROM LIST: COMPANY
 NO LONGER ACTIVE**

This technology feeds shredded medical waste through a steam heated "thermal screw". The waste is held at an internal (dry heat) temperature of 340 to 360 degrees Fahrenheit for 30 minutes. Steam passes through the hollow inside of the screw, thereby having no direct contact with the waste. The condensate from the steam is returned to the boiler feed tank for re-use. There is no liquid discharge. The treated medical waste is managed as solid waste.

Not for pathology, chemotherapy, or pharmaceutical waste.

Tempico, Incorporated – Rotoclave®

Blake Harrison
 Tempico, Inc.
 P.O. Box 428
 251 Hwy 21 North
 Madisonville, LA 70447

(504) 845-0800

The device is a pressure-vessel steam sterilizer which features an Internal rotating waste "mixer" which mixes and partially breaks up the waste, providing more efficient exposure of waste to steam and potentially speeding treatment. Because it is an autoclave, the Rotoclave® may be operated either under Section 118215 (a)(2) operating parameters, or for briefer cycle times as specified in its alternative technology approval. Treatment residues are managed as solid waste.

Not for pathology, chemotherapy, or pharmaceutical waste.

United Recycling – Gasification System (Gasf)

Aram Sarkissan
 United Recycling Technology, Inc.
 6230 Mayfield Avenue
 La Crescenta, CA 91213

(818) 957-2821

The device is a pyrolytic reactor that heats medical waste to temperatures greater than 1300° F by burning a mixture natural gas and the volatile organics that off-gas from the heated waste itself. A gas burner system indirectly heats the medical waste in the process chamber, producing a carbon char that is substantially reduced in weight and volume. Entrained particulate carbon in the gas stream is captured; along with the carbon treatment residue from the reaction chamber may be either recycled as carbon black or disposed as solid waste.

For all forms of medical waste.

Red Bag Solutions – SSM-150

Dr. Sanford A. Glazer
Red Bag Solutions
3431 Benson Ave., Suite 100
Baltimore, MD 21227

(877) 973-3224
FAX: (443) 524-4250
www.redbag.com

This high-temperature and pressure device shreds medical waste into a slurry in rapidly circulating superheated water. Beginning when the mixture reaches 250 ° Fahrenheit, computerized monitoring integrates time and temperature parameters, maintaining the device in treatment mode until treatment is complete.

Not for pathology, chemotherapy, or pharmaceutical waste.

WR² – ChemClave

Randall G. McKee
Sterile Technology Industries, Inc.
5711 W. Minnesota Street
Indianapolis, Indiana 46241

(317) 484-4200 Office
(317) 484-4201 Fax

The device is a medium to high throughput continuous-feed ambient pressure steam treatment system. Shredded medical waste is augered through a steam-jacketed tunnel for treatment. The waste is initially bathed in steam that is released into the auger, then dried and heated further as it passes through the second portion of the steam jacket, which does not release steam. The treated waste is deposited into a compactor for disposal as solid waste.

Not for pathology, chemotherapy, or pharmaceutical waste.

WR² – Tissue Digester

Waste Reduction by Waste Reduction Inc
5711 W. Minnesota Street
Indianapolis, Indiana 46241

(317) 484-4200 Office
(317) 484-4201 Fax

The device is a batch-feed pressure-vessel treatment system that using both thermal and chemical activity to inactivate pathogens. Waste is held at 250-300 ° C for a minimum of three hours in stoichiometric amounts of ~1N alkali at, achieving digestion and dissolution of protein and lipid matter along with pathogen kill. The liquid residue may be sewered in conformance with local POTW requirements. Solid residue (remaining inorganic bone material) may be disposed as municipal solid waste, or recycled as fertilizer.

Not for chemotherapy or pharmaceutical waste.

Conditions of Alternative Technology Approval

Alternative medical waste treatment technologies are approved under the authority of Chapter 8 of the Medical Waste Management Act. Approval is subject to and requires strict adherence to the operations protocol submitted in the alternative technology application.

Section 118215 requires that a person generating or treating medical waste...ensure that the medical waste [be] treated, thereby rendering it solid waste...prior to disposal. This approval, granted pursuant to subdivision (a)(3), requires that the alternative treatment method be both of the following:

- “(A) Approval by the Department;
- (B) Result in the destruction of pathogenic organisms...”

A technology's compliance with subdivision (B) shall be dependent on the continuing operation of these technologies will remain subject to the outcome of any inspections as may be required by the Department.

For additional information on requirements for use of these alternative treatment technologies, please contact your local health or environmental health agency or the California Department of Health Services, Medical Waste Management Program, Sacramento office at (916) 449-5671, or by fax at (916) 449-5665.